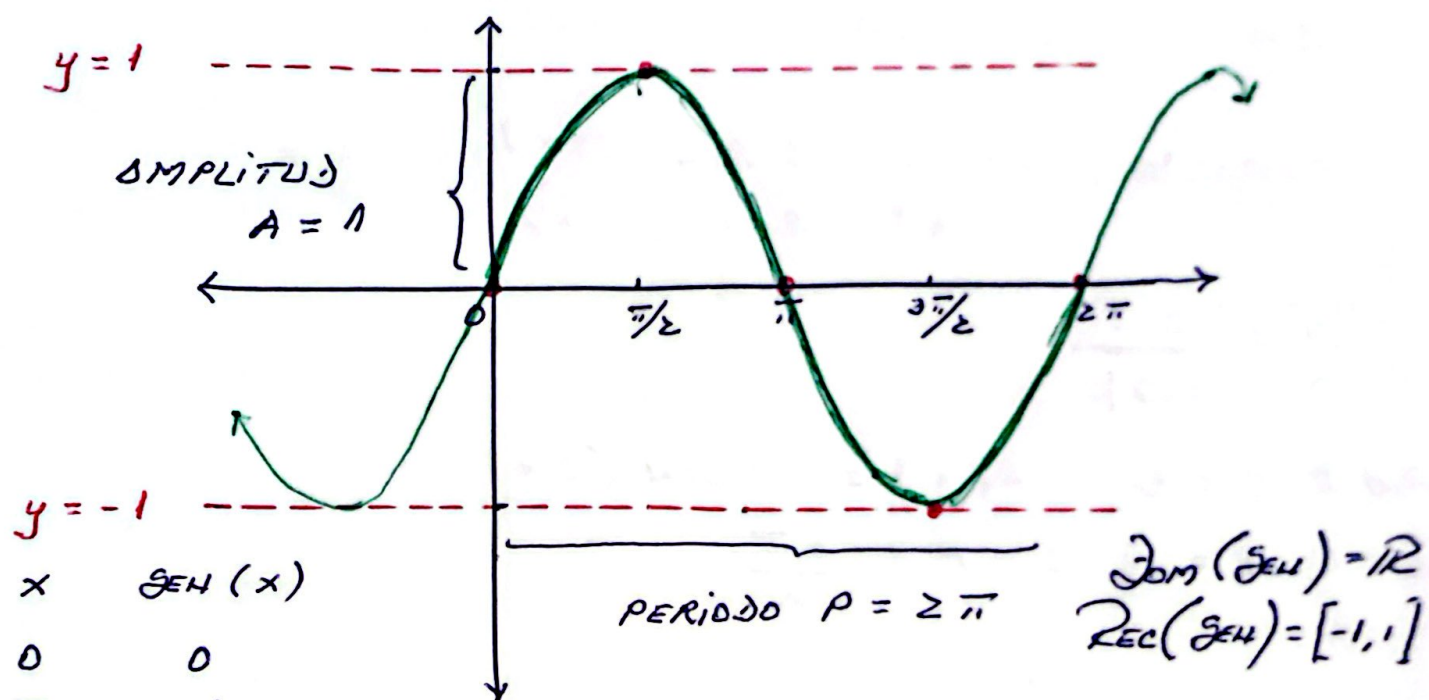
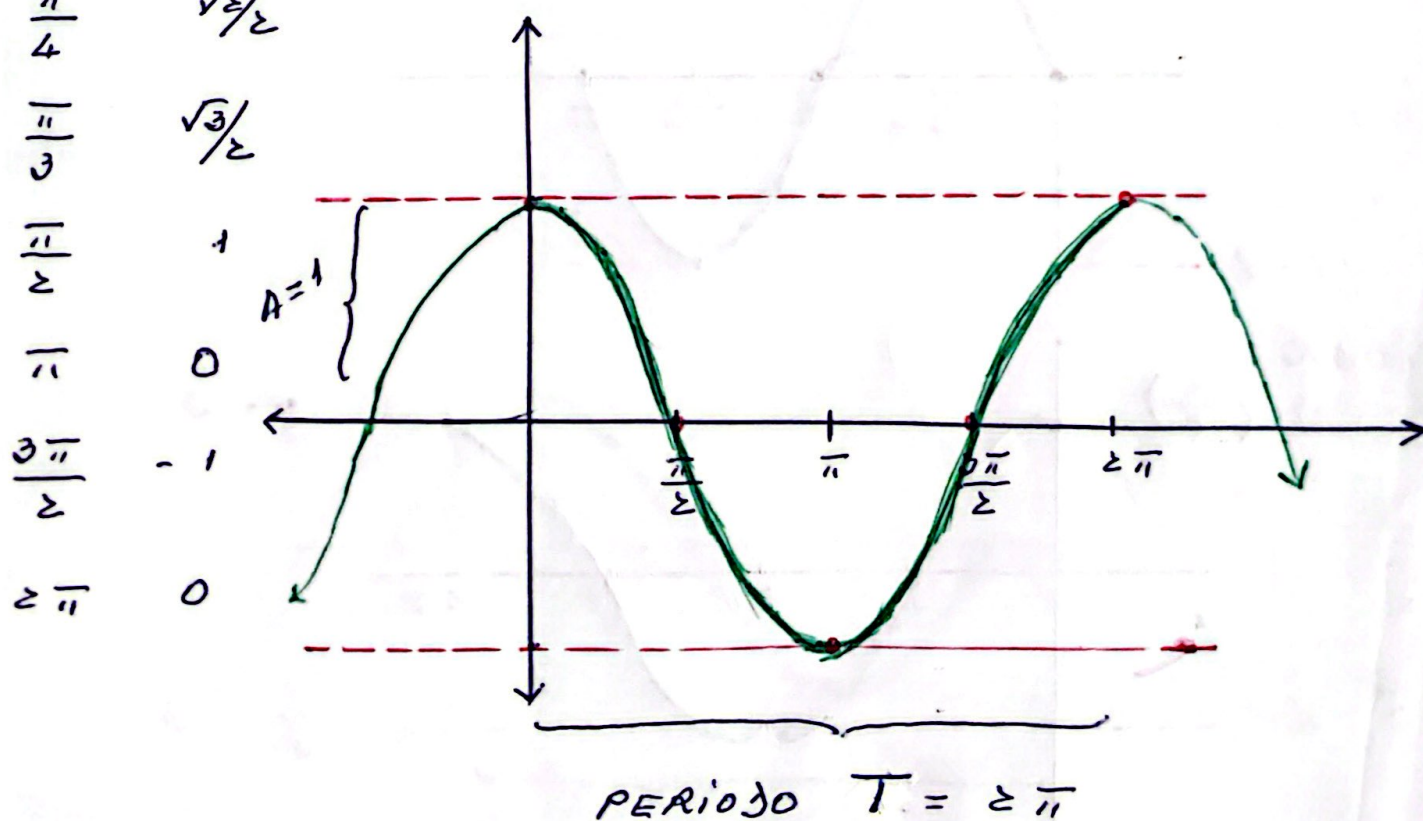


FUNCIÓN SENO.-



FUNCIÓN COSENO.-



$$\text{Dom}(\text{cos}) = \mathbb{R}$$

$$\text{Rec}(\text{cos}) = [-1, 1]$$

①

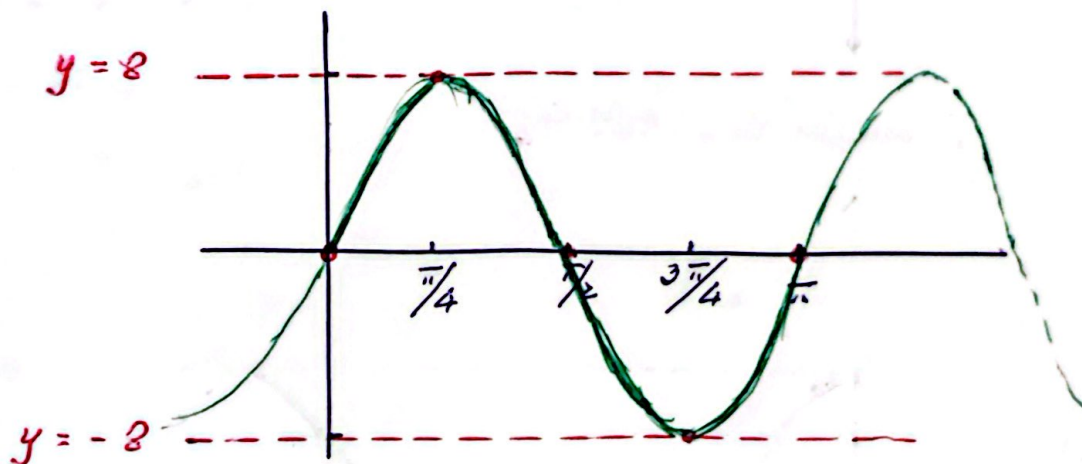
① $f(x) = A \sin(x)$
 $g(x) = A \cos(x)$
 AMPLITUDE : $|A|$

② PERIOD $f(x) = A \sin(Bx)$; $B \neq 1$
 $g(x) = A \cos(Bx)$

$$T = \frac{2\pi}{|B|}$$

GRAPHIC $f(x) = 8 \sin(2x)$

SOL : $A = 8$; $P = \frac{2\pi}{2} = \pi$



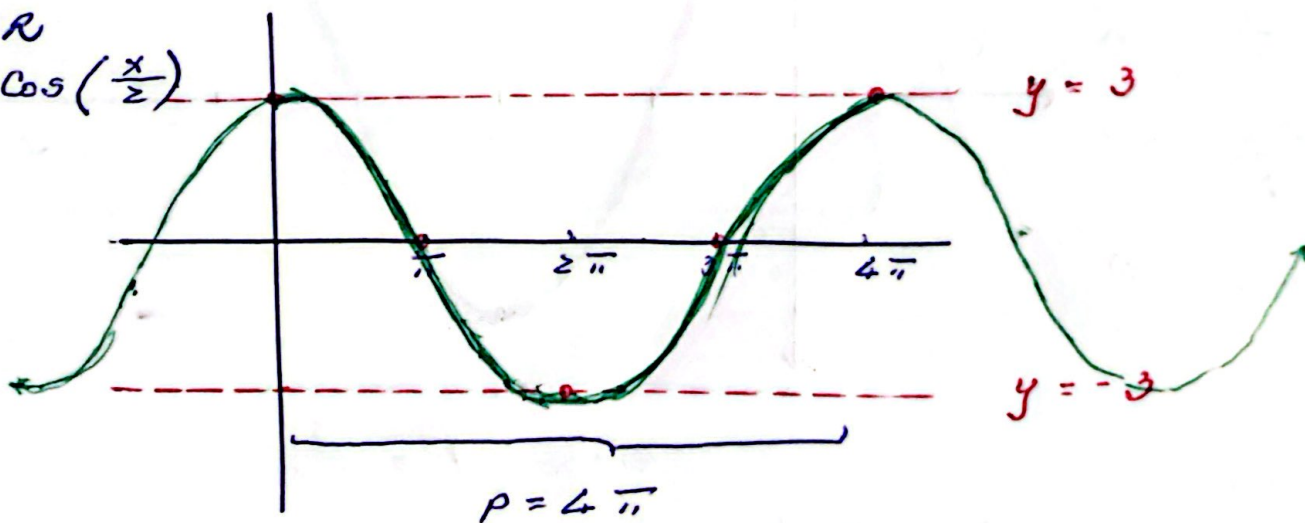
GRAPHIC

$$g(x) = 3 \cos\left(\frac{x}{2}\right)$$

$$A = 3$$

$$T = \frac{2\pi}{1/2}$$

$$= 4\pi$$



③ DESFASE (F) : DESPLAZAMIENTO HORIZONTAL

$$f(x) = A \sin(Bx + C)$$

$$g(x) = A \cos(Bx + C)$$

$$\text{DESFASE } F := -\frac{C}{B} \text{ (PUNTO DE INICIO DE UN CICLO)}$$

y $F + T = \text{PUNTO DE TÉRMINO DE UN CICLO}$

$$\text{EJEMPLO : } f(x) = +3 \sin\left(2x + \frac{\pi}{2}\right)$$

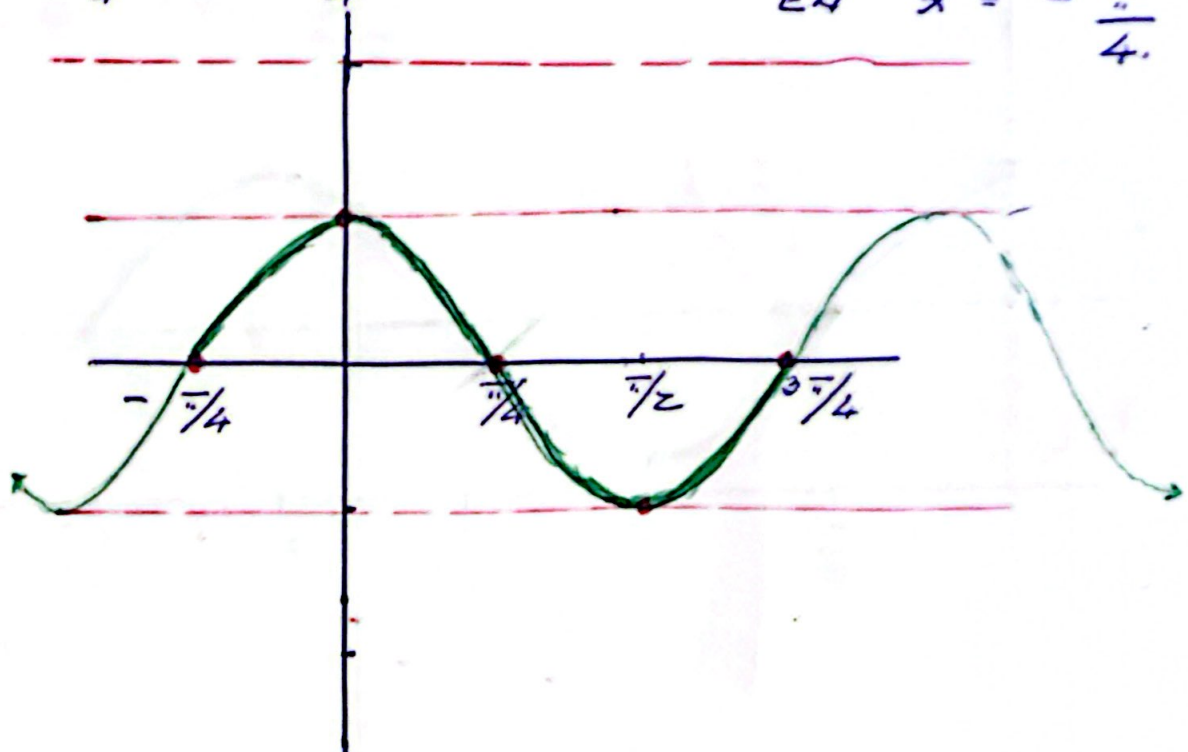
$$A = |+3| = 3 \text{ AMPLITUD}$$

$$T = \frac{2\pi}{2} = \pi \text{ PERÍODO}$$

$$F = -\frac{C}{B} = -\frac{\frac{\pi}{2}}{2} = -\frac{\pi}{4} \text{ DESFASE}$$

$$\text{TÉRMINO : } -\frac{\pi}{4} + \pi = \frac{3\pi}{4}$$

↳ UN CICLO PORTE EN $x = -\frac{\pi}{4}$



②

④ DESPLAZAMIENTO VERTICAL.-

$$f(x) = A \operatorname{sen}(Bx + C) + D$$

$$g(x) = A \cos(Bx + C) + D$$

Si $D > 0 \quad \uparrow \quad D$ ESPACIOS.

Si $D < 0 \quad \downarrow \quad D$ ESPACIOS

EJ. GRÁFICA $f(x) = -4 \operatorname{sen}\left(x - \frac{\pi}{2}\right) + 5$.

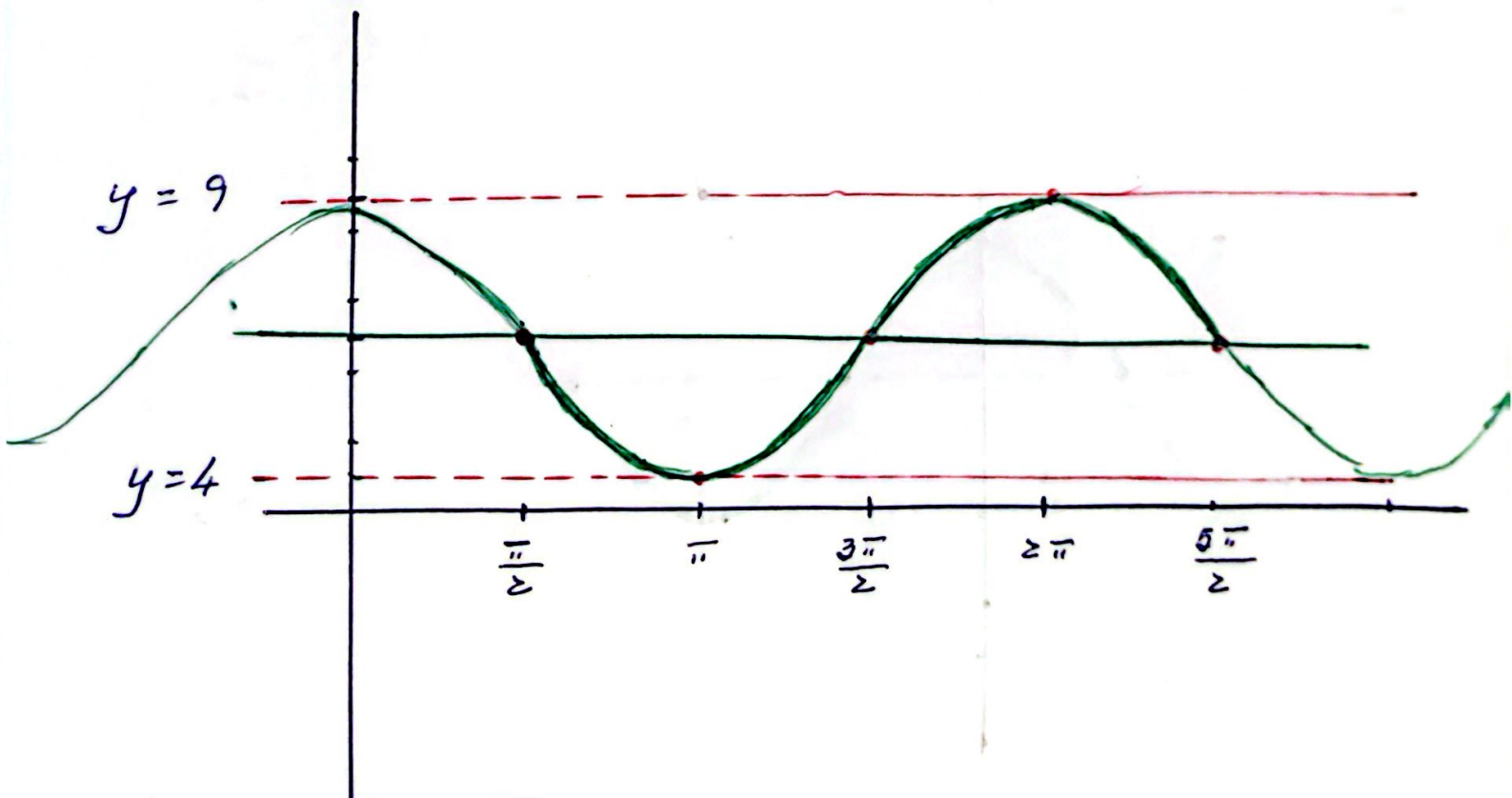
SOLUCIÓN: $A = |-4| = 4$ AMPLITUD.

$$T = \frac{2\pi}{1} = 2\pi$$

$$F = -\frac{C}{B} = \frac{-\left(-\frac{\pi}{2}\right)}{1} = \frac{\pi}{2} \rightarrow \text{UN CICLO PARTE EN } x = \frac{\pi}{2}$$

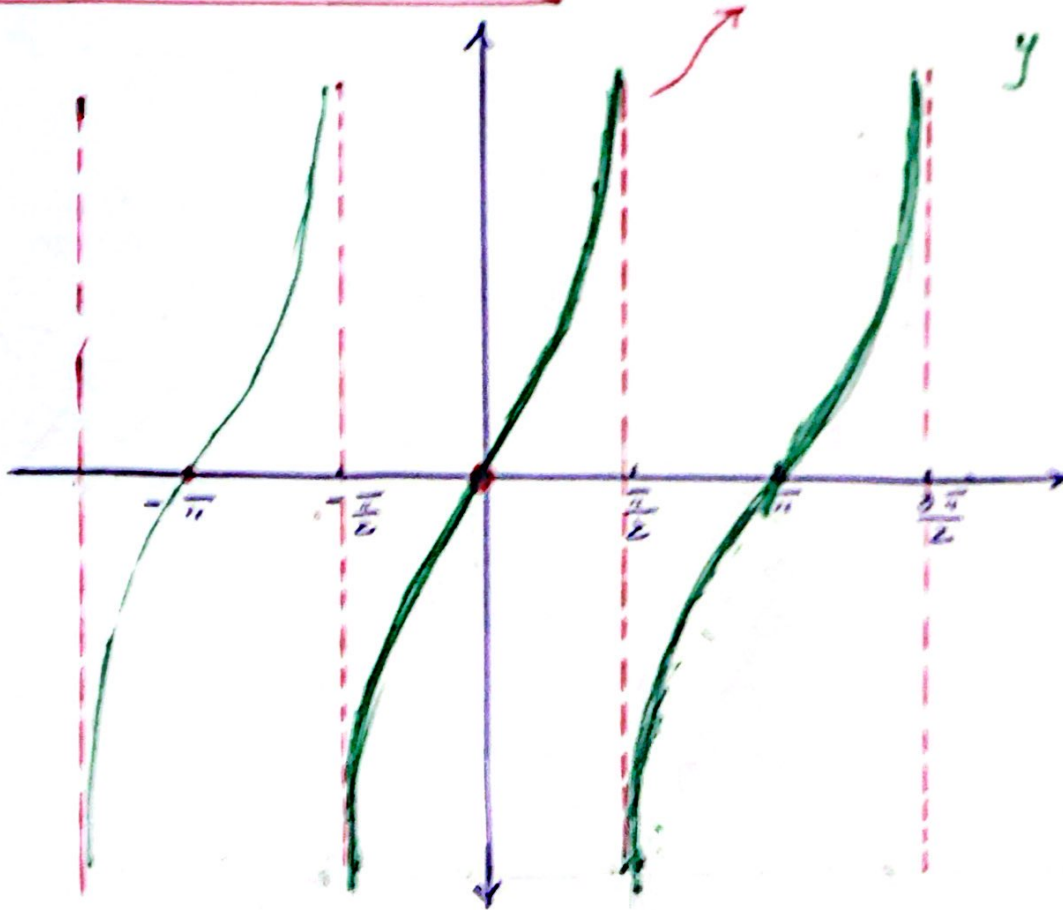
$$\text{TÉRMINO DE UN CICLO: } F + P = \frac{\pi}{2} + 2\pi = \frac{5\pi}{2}$$

$$D = 5 > 0 \quad \uparrow$$



Función Tangente:

RAMA PRINCIPAL



$$y = \tan(x)$$

$$y = A \cdot \tan(Bx + C) + D$$

$$\text{PERÍODO } T = \frac{\pi}{|B|}$$

$$\text{DESPLAZ } F = -\frac{C}{B} \text{ (inicio de un ciclo)}$$

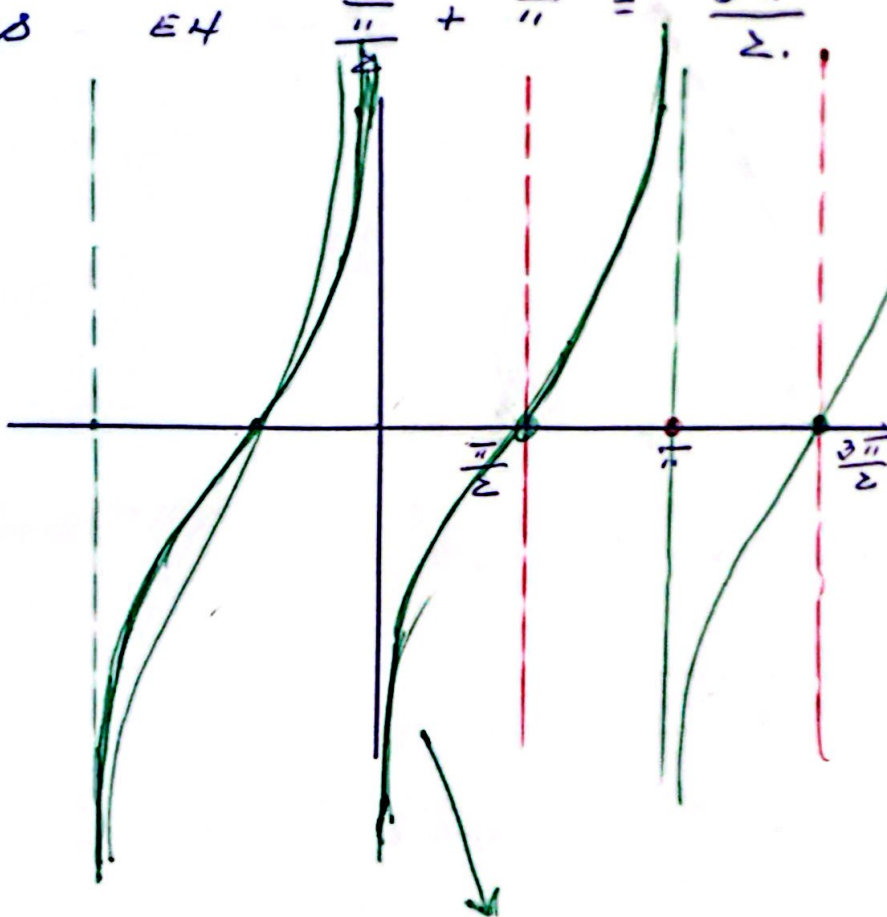
$$\text{TÉRMINO DEL CICLO } F + T$$

EJ: GRÁFICA $y = \frac{1}{3} \tan\left(x - \frac{\pi}{2}\right)$;
 $y = A \cdot \tan(Bx + C) + D$

PERÍODO $T = \frac{\pi}{B} = \frac{\pi}{1} = \pi$

DESPLAZ $D = -\frac{C}{B} = -\left(-\frac{\pi}{2}\right) = \frac{\pi}{2} \rightarrow$

TERMINOS EN $\frac{\pi}{2} + \pi = \frac{3\pi}{2}$



RSMB
PRINCIPAL

PUNTO MEDIO
 RAMA PRINC.

~~1. PUNTO MEDIO
 2. PUNTO MEDIO
 3. PUNTO MEDIO~~